

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

In re the Application of

Martin BROBERG

Serial No.: 10/722,575

Filed: November 28, 2003

For: **PROCESS FOR THE MANUFACTURING OF A THERMOSETTING
LAMINATE**

APPEAL BRIEF

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(i) REAL PARTY IN INTEREST

The real party in interest is the assignee of the inventor's interest, Pergo (Europe) AB, a company formed under the laws of Sweden having a principal address in Trelleborg, Sweden.

(ii) RELATED APPEALS AND INTERFERENCES

There is no known prior or pending appeals, judicial proceedings or interferences, known to Appellant, his assignee, or undersigned counsel which may be related to, directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal. However, applicants call to the attention of the Board the fact that U.S. Serial No.: 11/129,497 (Appeal No.: 2010-000263) contains claims which form the basis of double patenting of the obviousness-type rejections discussed below.

(iii) STATUS OF CLAIMS

Claims 1, 2, 10-12, 14-17, 24-38, 40-55 and 63-65 are pending and are the subject of this Appeal. Claims 3-9, 13, 18-23, 39 and 56-62 have been cancelled.

(iv) STATUS OF AMENDMENTS

No amendment has been filed subsequent to the final rejection.

(v) SUMMARY OF CLAIMED SUBJECT MATTER

Of the appealed claims, only claim 1 is independent. Claim 1 recites a process for the manufacturing of a decorative laminate, which laminate comprises an uppermost and lower visible surface (specification, page 1, lines 18-22). The uppermost surface comprises a decorative and abrasion resistant thermosetting laminate layer (specification, page 1, line 19-20) and a carrying core (specification, page 1, line 20). The carrying core is beneath the uppermost surface (specification, page 1, line 21-22) and comprises fiber board (specification, page 2, second full paragraph).

The lower visible surface consists of a balance layer (specification, page 1, lines 22-23).

The balance layer having the purpose of preventing warping of the decorative laminate (specification, page 1, line 23) and at the same time providing acoustic dampening (specification, page 1, line 24-25).

The balance layer consists of a single polymer layer (specification, page 1, last two lines).

The polymer of the balance layer consisting of an expanded physically cross-linked polyolefin with closed cells (specification, page 2, last paragraph).

The balance layer and thermosetting laminate are joined with the fiber board core by pressing (specification, page 3, last paragraph).

The resulting laminate is cut into panels (specification, page 2, lines 4-5) and provided with edges intended for joining (specification page 2, line 5.)

There are no "means plus function" limitations.

(vi) GROUND'S OF REJECTION TO BE REVIEWED ON APPEAL

(1.) The rejection of claims 1, 2, 10-12, 14-17 30-32, 37, 38, 40-55, 63 and 64 under 35 U.S.C. 103 (a) as unpatentable over Sjoberg (WO02/47906) in view of either JP 01310058 or JP 0229842; Breitscheidel et al. (U.S. Patent 4,882,208) and Moebus (WO 01/21633) and partial English language equivalent (U.S. 6,761,961).

(2.) The rejection of claims 24-26, 29, 33-36 and 65 under 35 U.S.C. 103 (a) as unpatentable over the references of paragraph 1 above and further in view of Leukel et al.

(3.) The rejection of claims 24 and 27-29 under 35 U.S.C. 103 (a) over the references in paragraph (1) above and further in view of Nowell et al (U.S. 4,885,659).

(4.) The rejection of Claims 1, 2, 10-12, 14-17, 30-31, 37, 38, 46-50, 54, 55 and 64 under 35 U.S.C. 103(a) over JP 0130058 in view of Sjoberg, Breitscheidel and Moebus.

(5.) The rejection of claims 24-26, 29, 33-36 and 65 under 35 U.S.C. 103 (a) over the references of paragraph 4 above in further view of Leukel.

(6.) The rejection of claims 24 and 27-29 under 35 U.S.C. 103 (a) over the references of paragraph 4 above and further in view of Nowell

(7.) Double patenting of the obviousness type of claims 1, 2, 10-12, 14-17, 30-32, 37, 38, 40-55, 59, 63 and 64 over copending application 11/129,497 in view of either JP 0130058 or JP 02299842, Breitscedel and Moebus

(8.) Double patenting of the obviousness type of claims 24-26, 29, 33-36 and 65 over the documents cited in paragraph 5 above and further in view of Leukel.

(9.) Double patenting of the obviousness type of claims 24 and 229 over the documents cited in paragraph 5 above and further in view of Nowell

(vii) ARGUMENT

(1.) The rejection of claims 1-2, 10-12, 14-17, 30-32-37, 38, 40-55, 63 and 64 under 35 U.S.C. 103 (a) as being unpatentable over Sjoberg et al. in view of either JP 01310058 or JP 02299842, Breitscheidel and Moebus (WO01/21366 and also its corresponding U.S. National Stage which matured into U.S. Patent 6,761,961).

Although the Examiner alleges that Sjoberg discloses a method of manufacturing a decorative laminate used for floor coverings comprising a carrying core layer of fiber board, providing a dampening (e.g., acoustic dampening) foil layer of thermoplastic polyolefin elastomer on the upper side of the core layer and providing an uppermost visible decorative and

abrasion resistant thermosetting laminate layer on the core layer, and then pressing to form the decorative laminate (page 1, lines 17-26 and page 2, lines 12-14) the claimed invention does not have a dampening (e.g., acoustic dampening) foil layer of thermoplastic polyolefin elastomer on the upper side of the core layer as does Sjoberg. Rather, applicants provide a balance layer i.e., a lower visible surface which not only “preventing warping of said decorative laminate and at the same time having the purpose of acoustic dampening” but further said “balance layer consisting of a single polymer”. The claim goes on to define the “said polymer consisting of an expanded physically cross-linked polyolefin with closed cells”. The Examiner concedes that Sjoberg is silent as to any balance layer having the purpose of preventing warping of the decorative laminate and at the same time having the purpose of acoustic dampening. Because Sjoberg is silent as to this claimed balance layer it goes without saying that Sjoberg does not teach a “balance layer consisting of a single polymer layer, said polymer consisting of an expanded physically cross-linked polyolefin with closed cells”.

While the Examiner alleges that it was known to provide a decorative laminate with a lower visible surface beneath a carrying core (citing 1 of Fig. 3 of JP 01310058 and 1 of Fig. 1 of JP 02299842) a balance layer (5 of Fig. 3 of JP 01310058 and 3 of Fig. 1 of JP 02299842) consisting of ethylene foaming material to provided improved cushioning as shown by JP 001310058 (See the abstracts and 5 of Fig. 3) or a closed cell foam to prevent warping of the laminate and provide improved cushioning as shown by JP 00299842 (See the abstract and 3 of Fig. 1) neither of these Japanese references contain the teachings attributed to it by the Examiner.

In the Office Action of June 25, 2008, to which Examiner supplied a listing of the references as well as an English language abstract of Japanese Patent 0130058, it is clearly stated therein that “cushion material composed of rubber sheet, rubber foaming material and ethylene foaming material...can be inserted when the flooring material is attached to the base plate”. (See the Derwent ACC-No. 1990-033087. In the alternative Patent Abstracts of Japan, the English Translation language abstract supplied with the same Office Actions carrys two diagrams and it is stated that “a cushion material 4 is inserted or a cushion material 5 is stuck to the back face of

the base plate 1 to be adapted for the floor material to be entered with shoes on, the surface decorative plate is utilized as it is". In neither the Derwent abstract or the Patent Abstracts of Japan is there any teaching that the balance layer consists of an expanded physically cross-linked polyolefin with closed cells as claimed even though the Examiner alleges that JP 0130058 describes such a balance layer (See page 3, 8-9 thereof). The full translation of JP 0130058 (attached to the Evidence Appendix) is silent as to the nature of cushion 5 and only discusses member 4 as a rubber sheet or foam material or an ethylene foam material (See translations page 5, lines 1-2). Thus, there is absolutely no disclosure as to the nature of cushion material 5 and certainly no disclosure as attributed to it by the Examiner in the final rejection.

Turning now to the alternative JP 02299842 English language Abstract as supplied by the Examiner as an attachment to the Office Action of February 3, 2009, as taken in connection with Figs. 1-3 of the JP Patent, also provided as an attachment to the same Office Action, it is stated that "veneer 2 compose of Japanese oak is bonded to the surface of a base plate 1". It is further stated that "subsequently, the veneer 2 is subjected to sanding". Because veneer 2 is composed of a natural material i.e., Japanese oak, it is not a thermosetting laminate, nor can it be stated that a cushion 3 of JP '842 inherently prevents warping of a thermosetting laminate since cushion 3 in JP '842 is only stated to be a cushion and not a balance layer and therefore the cushion cannot have the purpose recited in the claim of "preventing warping of said decorative laminate". Thus, even though a cushion material 3 is described as "bonded to the rear of the base plate 1 through an adhesive such as an SBR adhesive, a vinyl acetate type of adhesive or an aqueous vinyl type adhesive by a cold press", there is no teaching that such layer 3 is a balance layer having the purpose of preventing warping of a decorative laminate. Furthermore, the composition of that cushion material 3 is said to be a "closed cell-foam having a thickness of 1.0-10mm board, a sheet, for example a vinyl chloride sheet or a sound proof sheet of an open cell foam". However, applicant's balance layer "consisting of a single polymer layer, said polymer consisting of an expanded physically crossed-linked polyolefin with closed cells" is in no way described in the English language translation of JP 02299842. Even though the final rejection alleges that JP

02299848 “describes a balance layer as consisting of a closed cell foam considered expanded closed cell foam”.

The Examiner concedes that both JP 0130058 and JP 02299842 “are silent as to all the particulars” of the claimed expanded physically cross-linked polyolefin with closed cells”. See the final rejection page 3, 12-13.

Thus, having conceded that the proposed combination of either of the two Japanese documents with Sjoberg still fails to establish a prima facie case of obviousness for the claimed invention due to the silence of the references “as to all the particulars” the Examiner cites Breitscheidel et al. as “exemplary of the use of closed cell polyolefin foam material as cushioning for flooring wherein the foam is expressly described as expanded physically cross-linked polyolefin foam with closed cells”. However, Breitscheidel et al. is directed to “a multilayer composite sheet, especially for use as a padding layer under an artificial grass or turf”. Breitscheidel et al’s multilayer padding is shown in the sole figure wherein the polyolefin foam sheet 1, a layer of kraft paper 2, and an aluminum foil 3 are illustrated as layers 1, 2, 3, respectively. While Breitscheidel et al. is in effect “a padding layer,” it is not attached to any type of flooring material but is merely “placed underneath the artificial turf.” See column 1, lines 42-45. Thus, even if this padding layer is formed of a cross-linked polyolefin foam material as alleged by the Examiner, it is not a “balance layer consisting of a single polymer layer, which both prevents warping of a decorative laminate and at the same time having the purpose of acoustic dampening” because neither prevention of warping or acoustic dampening are taught by Breitscheidel et al., Breitscheidel et al does not adhere his padding to any material, whatsoever, but merely places it under artificial turf. There is no indication that the Breitscheidel et al. material would be suitable for bonding to a carrying core for the purpose of preventing warping of a thermosetting laminate. When the authors of Breitscheidel et al. mentioned a “cross-linked polyolefin material it is only in the context of laminating such a foam material with plastic sheet with non-cross-linked polyolefin coated with a metallic foil, thus the Breitscheidel et al. cross-linked polyolefin with closed cell is never used a single polymer layer

but only when laminated to a further polymer layer i.e., the plastic sheet. Thus, in order to make the proposed combination of references thus far, the Examiner would have to strip the cross-linked polyolefin sheet of Breitscheidel et al. from its bonded plastic sheet (as well as the metallic foil), substitute it for the ethylene materials of either of the Japanese references and then further bond such modified materials to the core of the Sjoberg references, where at no time is there indication of the Japanese references or Breitscheidel et al. that such foam material can act as a balance layer preventing warping of a decorative thermosetting laminate as specified in the claims. Still further that proposed combination which the Examiner attempts to make with Sjoberg, either of the Japanese references, and Breitscheidel et al. still does not teach the cutting of the achieved laminate into panels and providing edges intended for joining of the panels.

Thus, the Examiner further cites Moebus as disclosing a method of manufacturing decorative laminate used for floor covering which only has a carrying core layer, an upper decorative and abrasion resistant laminate layer, and absolutely no balance layer and clearly no balance layer comprising a physically cross-linked expanded polyolefin with closed cells as recited in the claims. In fact, none of the cited references, in any possible proposed combination, teaches the process of joining the decorative laminate, the core, and the balance layer, by pressing and subsequently cutting the achieved laminate into panels as claimed.

If not apparent, applicants again reiterate that none of Sjoberg, Breitscheidel et al. or Moebus even have a balance layer comprising a single polymer, which polymer is a physically cross-linked polyolefin of closed cells. While the JP references do provide a cushion layer, such cushion layer is applied to each individual plank and it is never described as being formed into a product which is cut into panels and provided with edges intended for joining as claimed. Thus, despite the Examiner's reliance at least five cited references, he still does not even attempt to teach the claimed limitations, nor suggest why the failure of the prior art to contain such teachings does not entitle applicant to a Patent that is mandated by the statute "a person shall be entitled to a patent unless-" (35 U.S.C. 102, first line). For all of the foregoing reasons applicants respectfully submit that the Examiner has simply failed to act as a fact finder under

KSR and establish in the cited references those limitations found in applicant's claims. Having failed to establish a prima facie case of obviousness, the board is mandated to reverse the rejection.

(2) The rejection of claims 24-26, 29, 33-36 and 65 under 35 U.S.C. 103 (a) as unpatentable over the references at paragraph 1 above and further in view of Leukel et al.

The deficiencies noted above with regards to the proposed combination of Sjöberg, either of the JP references, Breitscheidel et al. and Moebus as set forth above is incorporated and repeated herein as though fully set forth herein. The Examiner concedes that such references do not "teach including a conductive material such as carbon black or carbon fiber in the glue or elastomer layers". However, firstly, none of the applicant's claims used the term "elastomer layers" though it is clear that some claims, e.g., claims 33-36, specifically recite a conductive material in the glue and claims 65 recites a conductive material in the bonding layer. Thus, while Leukel et al. disclose a floor covering including rubber and glue layers, the glue layers applied in applicant's invention are used to bond the balance layer and/or thermosetting laminate to the carrying core, there is no teaching of Leukel et al. to use a glue layer (whether or not conductive) to impart static dissipative properties to a thermosetting layer, or balance layer. Rather, all that Leukel et al. is concerned with is imparting static dissipative properties to a rubber layer and, as its quite apparent, none of the claims require a rubber but rather the antithesis of a thermosetting material, such a rubber layer, by the use of a thermoplastic material such as the claimed polyolefin. Furthermore, because as there is no "polyolefin" in the teachings of Leukel et al. but only rubber, there is no reason to expect that Leukel would teach incorporation of a conductive material into a polyolefin as recited in claims 24-26 and 29.

Again, the Examiner has simply failed to teach the incorporation of a conductive material into a polyolefin for the purposed of imparting conductivity thereto and has failed to establish why one with ordinary skill in the art would apply conductivity to glue used to bond a thermosetting layer and a core and/or a thermoplastic layer and a core as specified in claims 33-

36 (and 65). Accordingly, the agglomeration of references simply fails to teach the claimed steps in order to establish a prima facie case of obviousness.

(3.) The rejection of claims 24 and 27-29 under 35 U.S.C. 103 (a) as being unpatentable over Sjoberg, either of JP 0130058, or JP 02299842, Breitscheidel and Moebus as applied in paragraph 1 above and further in view of Nowell.

The deficiencies of JP '058, JP'842, Sjoberg, Breitscheidel and Moebus are set forth above and incorporated herein as though fully set forth herein.

The Examiner again concedes that the Japanese '058, Sjoberg, Breitscheidel and Moebus references do not teach including a conductive material, such a vacuum metalized aluminum layer and the balance layer.

While it is alleged that Nowell discloses a floor covering including a thermoplastic layer wherein the thermoplastic layer, includes a conductive material, such as vacuum metalized aluminum layer to impart static dissipating properties to the floor covering, Nowell is not directed to a laminate but rather to a static dissipative mat. As shown in Fig. 3 of Nowell, his mat 50 is formed of a metalized tissue sheet 10 embedded in a mat 50 in a position about thirty to forty mils from the embossed face surface 20, with the top layer 16 comprising a solid vinyl chloride resin and the bottom layer 18 comprising a solid vinyl chloride resin; see column 6, lines 21-27. There is no thermosetting decorative layer in the mat of Nowell, no balance layer in the mat of Nowell and in fact no core layer in the mat of Nowell. Rather, Nowell is directed to a polymeric material above and below a metallic tissue sheet material 10 and it is not at all apparent to the ordinary worker skilled in the art at the time the invention was made how the Nowell et al. mat could be utilized in a combination with Sjoberg, either of the Japanese references, Breitscheidel et al. and Moebus to create "static dissipating properties to the entire decorative laminate floor covering" because Nowell in fact does not teach such a system. Withdrawal of the rejection is therefore proper because the combination does not establish a prima facie case of obviousness for the claimed invention.

It is noted again however, that the Examiner, with regards to the Sjoberg reference the Examiner's statement that there is "obvious to one of ordinary skill in the art at the time the invention was made to include in the each of thermoplastic layers of Sjoberg...". However, Sjoberg does not teach each of the thermoplastic layers because he does not teach the presence of any balance layer, and therefore not a thermoplastic balance layer such as one made of olefin as is simply recited in the claims. Thus, it is not clear where the so-called dissipative mat of Nowell is to be used to modify the Sjoberg et al. teachings.

(4.) The rejection of claims 1, 2, 10-12, 14-17, 30, 31, 37, 38, 46-50, 54, 55 and 64 is essentially a repetition of the rejection set forth in paragraph 1, above limited to the JP '058 Patent in view of Sjoberg, Breitscheidel et al, and Moebus under 35 U.S.C. 103 (a). The defects of these references in combination is not cured by eliminating the alternative JP 02299842 cited with regard to paragraph 1 above and for all of the reasons set forth with regard to the rejection of the claims in paragraph of 1 above, such deficiencies are herein incorporated by reference as though fully set forth herein. Reversal of the rejection is therefore respectfully requested.

(5.) The rejection of claims 24-26, 29, 33-36 and 65 under 35 U.S.C. 103 (a) is essentially the same rejection as applied to the claims in paragraph 2 above this time omitting the JP 02299842 reference. However, the deficiencies of the proposed combination of references was fully discussed above in connection with the rejection of paragraph 2 and such arguments are herein incorporated by references as though fully set forth herein.

(6.) The rejection of claims 24 and 27-29, under 35 U.S.C. 103 (a) as being unpatentable over JP 0130058, Sjoberg, Breitscedel and Moebus, is essentially the same as applied in paragraph 3 above is except that the Examiner omits the JP 02299842 reference. The deficiencies of the references is essentially the same as discussed in paragraph 3 above, which arguments are herein incorporated by references though fully set forth herein.

(7.), (8.), (9.) With regard to each of the double patenting rejections based on the judicially created doctrine grounded in public policy i.e., "the nonstatutory obviousness-type double patenting rejection" each of the rejections is based on co-pending application 11/129,497, the

claims which are not yet patented. Because such claims are not yet patented, they cannot possibly form the basis for an obviousness-type double patenting, because, by definition, the judicial policy of nonstatutory obviousness-type double patenting presumes that there is already a patented claim which in fact does not exist in the instant case. For the forgoing reasons because none of co-pending application claims in serial number 11/129,497, are in fact patented, these rejections must be reversed.

(viii) CONCLUSION

For the foregoing reasons, reversal of all rejections by the Board are respectfully requested.

(viii) CLAIMS APPENDIX

A copy of the claims on Appeal can be found in claims Appendix

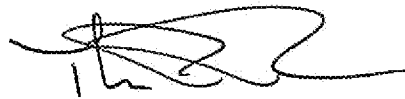
(ix) EVIDENCE APPENDIX

See attached PTO prepared English language Translation of Japanese application of 01-310058

(x) RELATED PROCEEDING APPENDIX

Not applicable, but see the comments in section (ii) above noting that the double-patenting of the obviousness-type are based on claims that are currently on Appeal in U.S. Serial No.: 11/129,497 (Appeal No. 2010-000263)

Respectfully submitted,



Thomas P. Pavelko

Date: November 6, 2009
Atty Docket No. 8688.027.US0000

APPENDICES

The following Appendices are attached to and made a part of this brief:

| | |
|------------|---------------------------|
| Appendix A | Claims on Appeal |
| Appendix B | Evidence |
| Appendix C | Related Proceedings (N/A) |

APPENDIX A: Claims on Appeal

1. A process for the manufacturing of a decorative laminate, which laminate comprises an uppermost decorative and abrasion resistant thermosetting laminate layer and a carrying core, wherein the core comprises fiber board and wherein the upper side of the core is provided with the abrasion resistant thermosetting laminate and that the lower side of the core consists of a balance layer, said balance layer having the purpose of preventing warping of said decorative laminate and at the same time having the purpose of acoustic dampening, said balance layer consisting of a single polymer layer, said polymer consisting of a thermoplastic polymer whereby said balance layer and said thermosetting laminate are joined with said fiber board core by pressing, whereupon the achieved laminate is cut into panels and provided with edges intended for joining.

2. A process according to claim 1, wherein the thermosetting laminate is constituted by one or more decor papers impregnated with melamine-formaldehyde resin and one or more overlay sheets impregnated with melamine formaldehyde resin arranged on top of the decor papers and possibly one or more resin impregnated underlay papers, arranged under the decor paper or decor papers, which papers are laminated together under increased pressure and increased temperature.

10. A process according to claim 2, wherein at least one of the sheets impregnated with thermosetting resin is provided with hard particles with an average size of 1 - 100 μm .

11. A process according to claim 2, wherein the thermosetting laminate has a thickness in the range 0.3 mm - 1.2 mm.

12. A process according to claim 2, wherein the thermosetting laminate has a density in the range 1250 - 1500 kg/m^3 .

14. A process according to claim 1, wherein the balance layer has an elasticity compression coefficient in the range 0.5 - 2.7 MPa.
15. A process according to claim 1, wherein the balance layer has a thickness in the range 0.1 - 5 mm.
16. A process according to claim 1, wherein the balance layer has a density in the range 50 - 400 kg/m³.
17. A process according to claim 1, wherein the balance layer is joined with the carrying core by means of glue and pressure.
24. A process according to claim 1, wherein the balance layer further comprises a conductive material.
25. A process according to claim 24, wherein the conductive material comprises carbon black.
26. A process according to claim 24, wherein the conductive material comprises carbon fibre.
27. A process according to claim 24, wherein the conductive material comprises a vacuum metallized layer.
28. A process according to claim 24, wherein the conductive material comprises aluminum.
29. A process according to claim 24, wherein a conductivity is better than 500 kΩcm.

30. A process according to claim 1, wherein the thermosetting laminate is joined with the carrying core by means of glue and pressure.

31. A process according to claim 1, wherein at least one of the balance layer and the thermosetting laminate is joined with the carrying core by at least one of melt-glue, heat and pressure.

32. A process according to claim 63, wherein at least one of the balance layer and the thermosetting laminate is joined with the carrying core by at least one of glue, heat and pressure.

33. A process according to claim 32, wherein the glue comprises a conductive material.

34. A process according to claim 33, wherein the conductive material is constituted of carbon black.

35. A process according to claim 33, wherein the conductive material is constituted of carbon fibre.

36. A process according to claim 33, wherein a conductivity is better than 500 kΩcm.

37. A process according to claim 1, wherein the thermosetting laminate has a thickness in the range 0.3 mm - 1.2 mm.

38. A process according to claim 37, wherein the thermosetting laminate has a density in the range 1250 - 1500 kg/m³.

40. A process according to claim 39, wherein the dampening foil has an elasticity compression coefficient in the range 0.5 - 2.7 MPa.

41. A process according to claim 39, wherein the dampening foil has a thickness in the range 0.1 - 0.7 mm.

42. A process according to claim 39, wherein the dampening foil has a density in the range 150 - 400 kg/m³.

43. A process according to claim 39, wherein the dampening foil and the thermosetting laminate are joined with the carrying core by means of glue and pressure.

44. A process according to claim 41, wherein the dampening foil and the thermosetting laminate are joined with the carrying core by means of at least one selected from the group consisting of melt-glue, heat and pressure.

45. A process according to claim 41, wherein the dampening foil and the thermosetting laminate are joined with the carrying core by each of melt-glue, heat and pressure.

46. A process according to claim 10, wherein the hard particles have an average size of 5 - 60 μm .

47. A process according to claim 2, wherein the thermosetting laminate has a thickness in the range 0.3 mm - 0.9 mm.

48. A process according to claim 1, wherein the balance layer has a thickness in the range 0.2 - 1 mm.

49. A process according to claim 1, wherein the balance layer has a density in the range 80 - 330 kg/m³.

50. A process according to claim 1, wherein the thermosetting laminate has a thickness in the range 0.3 mm - 0.9 mm.

51. A process according to claim 39, wherein the dampening foil has an elasticity compression coefficient in the range 0.8 - 2.0 MPa.

52. A process according to claim 39, wherein the dampening foil has a thickness in the range 0.1 - 0.5 mm.

53. A process according to claim 39, wherein the dampening foil has a density in the range 180 - 330 kg/m³.

54. A process according to claim 10, wherein the hard particles are at least one selected from the group consisting of silicon oxide, aluminum oxide and silicon carbide.

55. A process according to claim 2, wherein the laminate comprises underlay papers and said underlay papers contain phenol-formaldehyde resin.

63. The process of claim 1, wherein the carrying core is further provided with a dampening foil of an elastomer arranged between the upper side of the core and the abrasion resistant thermosetting laminate, which elastomer and thermosetting laminate are joined with each other and with the core by pressing.

64. The process of claim 1, further comprising adding a bonding layer between the balance layer and the core.

65. The process of claim 64, wherein the bonding layer contains a conductive material.

APPENDIX B: Evidence Appendix under 37 CFR §41.37(c)(1)(ix)

PTO prepared English language Translation of Japanese application No. 01-310058

PTO: 2004-3213

Japanese Published Unexamined Patent Application (A) No. 01-310058,
published December 14, 1989; Application Filing No. 63-140814, filed June
8, 1988; Inventor(s): Kazushige Baba; Assignee: Yamaha Corporation;
Japanese Title: Pressure-Resistant Composite Material for Floors

Pressure-Resistant Composite Material for Floors

CLAIM(S)

1) A pressure-resistant composite floor material characterized in that a load-resistant backing material is laminated on the back surface of a single veneer sheet, and in that this sheet is bonded to the surface of the base sheet of a floor material.

2) A pressure-resistant composite floor material, as cited in Claim 1, wherein said load-resistant backing material is a phenol-impregnated sheet.

3) A pressure-resistant composite floor material, as cited in Claim 1, wherein a cushion material is applied to the back surface of said load-resistant backing material before it is bonded to the surface of said base sheet.

DETAILED DESCRIPTION OF THE INVENTION

(Field of Industrial Application)

The present invention pertains to a pressure-resistant composite material for floors that is sufficiently applicable to a wooden floor to be stepped on with shoes on.

(Prior Art)

A wooden floor is generally locally damaged by the heels of high heel shoes or sharp leading edges of umbrellas when used for the areas where people walk with shoes on.

To prevent these damages, it can be considered that a synthetic resin is injected in the wooden floor material and cured or that the floor surface is coated with a hard material. In such a case, however, a feel of stepping on a wooden floor is lost, and the surface of the floor becomes slippery, giving a rise to new problems.

(Problems of the Prior Art to Be Addressed)

The present invention, to solve the aforementioned problems, attempts to present a wooden floor material that will not lose a feel of stepping on a wooden floor and will not be easily damaged even if it receives a locally concentrated load.

(Means to Solve the Problems)

As a means to solve the aforementioned problems, the present invention presents an idea of laminating a load-resistant backing material, such as a phenol resin-impregnated sheet, on the back surface of a single veneer sheet, and this sheet is bonded to the surface of a base sheet which becomes a floor material.

(Function)

Since the load-resistant backing material is laminated on the back surface of the veneer sheet, the pressure resistance is improved. And, since the surface of single veneer sheet is used as is, a feel of stepping on a wooden floor can be preserved.

(Embodiment)

The embodiment example of the present invention is explained with reference to the attached drawings.

Fig. 1 shows a first embodiment example, wherein 1 indicates the base sheet of the floor that is made of wooden material of plywood or gluam and has 2.4 – 20 mm thickness; 2 indicates the single veneer sheet of the floor material with a 0.2 – 1.5 mm thickness on whose back surface the load-resistant backing material 3 is laminated. In this case, the load-resistant backing material 3 is a 0.5 – 1.5 mm thick phenol resin-impregnated sheet.

But the material of the sheet is not limited to this but a proper material can be used.

In addition, in the past, glass fiber or rice paper was laminated on the back surface of the single veneer sheet, but this was to prevent the single veneer sheet from being cracked and was not to improve the pressure resistance.

As explained above, the single veneer sheet 2 with the load-resistant backing material 3 laminated is bonded to said base sheet 1 to construct the floor material of the present invention.

The floor sheet thus formed is significantly improved in the pressure resistance against a local impact. For example, with the prior art floor material, holes were made by the pressure less than 60 kg/ ϕ 8 and it was impossible to restore the floor material. With the floor material of the present invention, however, only a slight dent less than 0.3 mm was generated by 80 kg/ ϕ 8 pressure.

Fig. 2 shows the second embodiment example, which has likewise base sheet 1, veneer single sheet 2, and load-resistant backing material 3 laminated on the back surface of the veneer single sheet. But it is different from the embodiment example 1 in that when this load-resistant backing material 3 is bonded to said base sheet 1, a cushion member 4 is inserted.

For the cushion member 4, can be used a 0.5 – 10 mm rubber sheet or foam material or an ethylene foam material.

Fig. 3 shows the third embodiment example, wherein a 1 – 5 mm cushion member 5 is further laminated on the back surface of the base sheet of the first embodiment example or second embodiment example.

With the second embodiment example and third embodiment example, the impact from walking is reduced by the inserted cushion, and a feel of walking on is further improved.

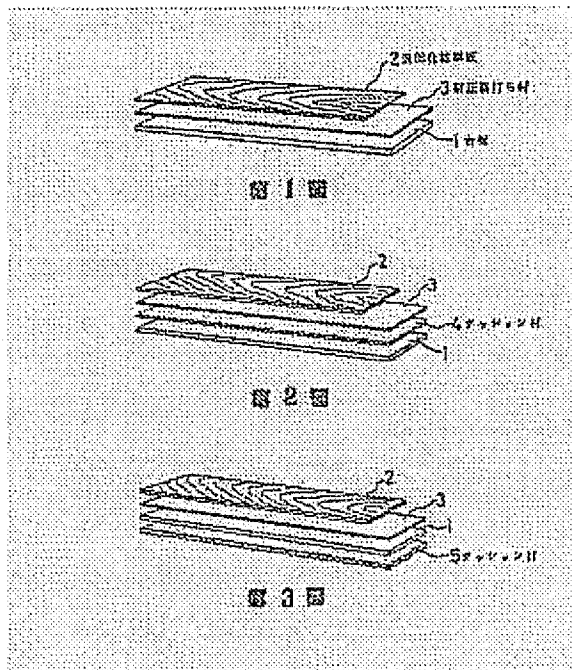
(Advantage)

As explained above, according to the present invention, since a load-resistant baking material is laminated on the back surface of a single veneer sheet, pressure resistance against the locally concentrated load can be significantly increased; therefore, holes and dents are not easily made even if impacts are exerted by the heels of high heel shoes and some sharp items, so the floor material of the present invention can be well usable as a floor material to be walked on with shoes on. In addition, since the veneer single sheet can be used as is, a feel of walking on a wooden floor can be preserved, which is a great advantage.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows an oblique view of a disintegrated sheet of the first embodiment example of the present invention. Fig. 2 shows likewise an oblique view of a disintegrated sheet of the second embodiment example of the present invention. Fig. 3 shows an oblique view of a disintegrated sheet of the third embodiment example.

1. base sheet
2. surface veneer single sheet
3. pressure-resistant backing material
- 4, 5. cushion material



Translations
U. S. Patent and Trademark Office
8/2/04
Akiko Smith

APPENDIX C: Related Proceedings Appendix under 37 CFR §41.37(c)(1)(x)

Not applicable, but see the comments in section (ii) above noting that the double-patenting of the obviousness-type are based on claims that are currently on Appeal in U.S. Serial No.: 11/129,497 (Appeal No. 2010-000263)